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11 June 1973



DIRECTORATE OF
SCIENCE & TECHNOLOGY

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WEEKLY SURVEYOR

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Directorate of Science and Technology

This publication is intended to furnish the intelligence community with a timely survey of significant current scientific intelligence. The items herein are based on selected incoming reports of all kinds received during the previous week. The comments represent the views of the Office of Scientific Intelligence and the Foreign Missile and Space Analysis Center and are coordinated to the extent possible in the time available within CIA but, being based on the material at hand, are subject to change on receipt of further information or analysis. We caution against action taken solely on the basis of the preliminary evaluations herein. Substantive questions concerning items in this publication may be addressed directly to the Surveyor Staff, OSI, CIA Headquarters, Langley. (Code 143, Extension 6516) Questions concerning distribution should be forwarded through appropriate departmental channels.

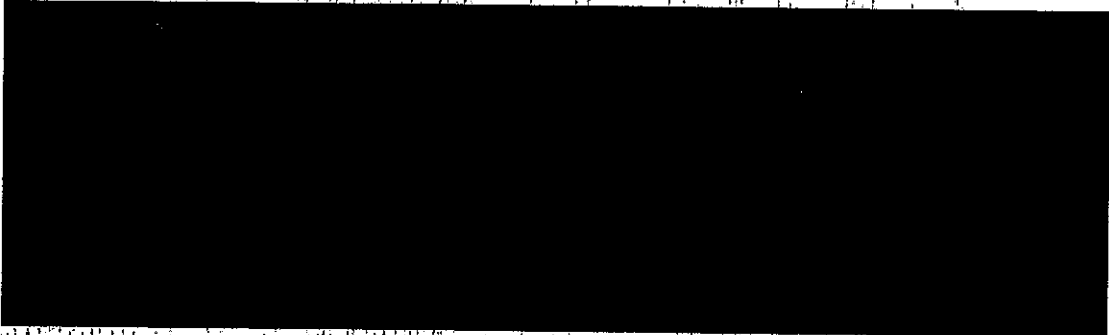
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NUCLEAR ENERGY



South Africans to Fund Preparatory
Work for Full Scale Uranium
Enrichment Plant 1



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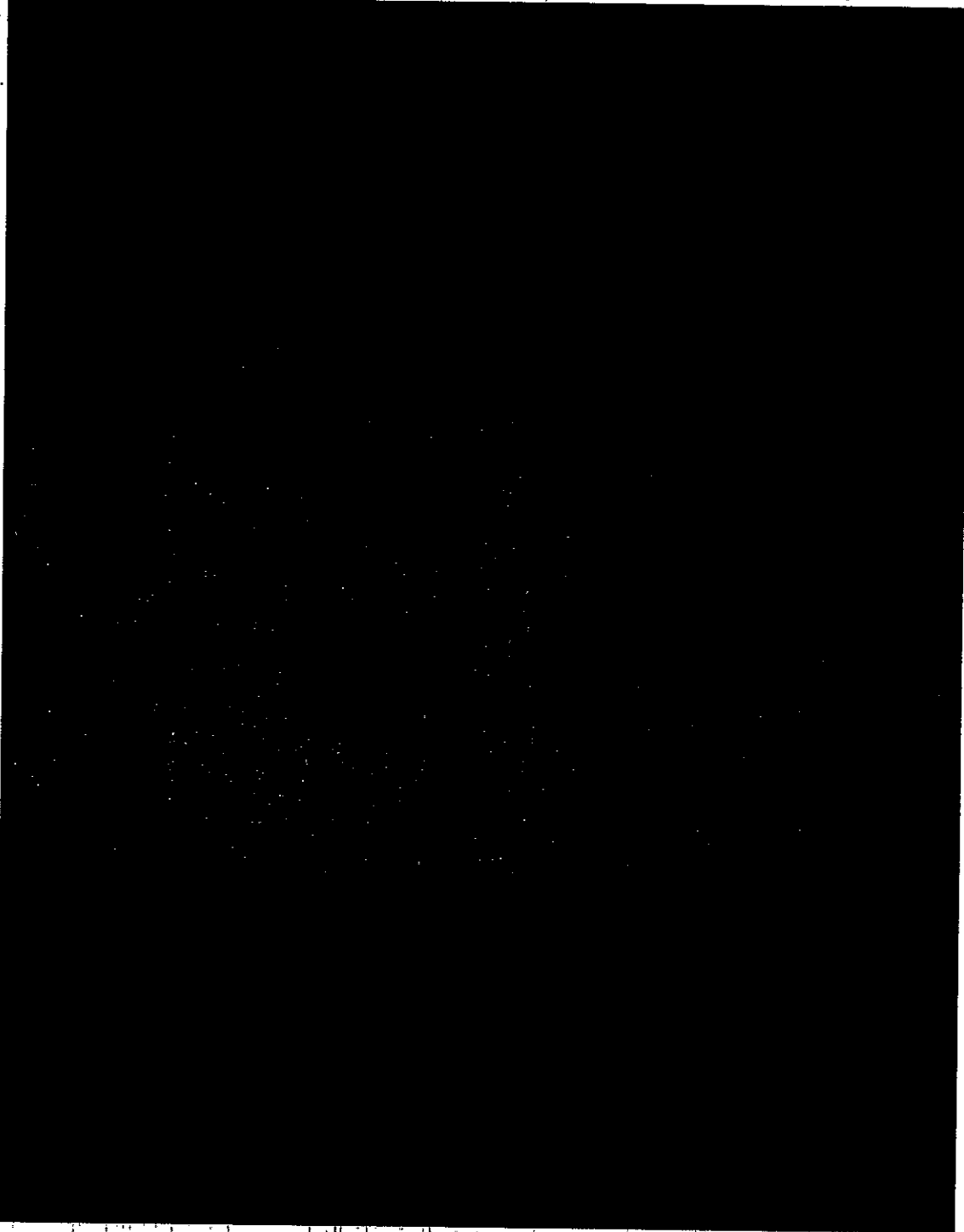
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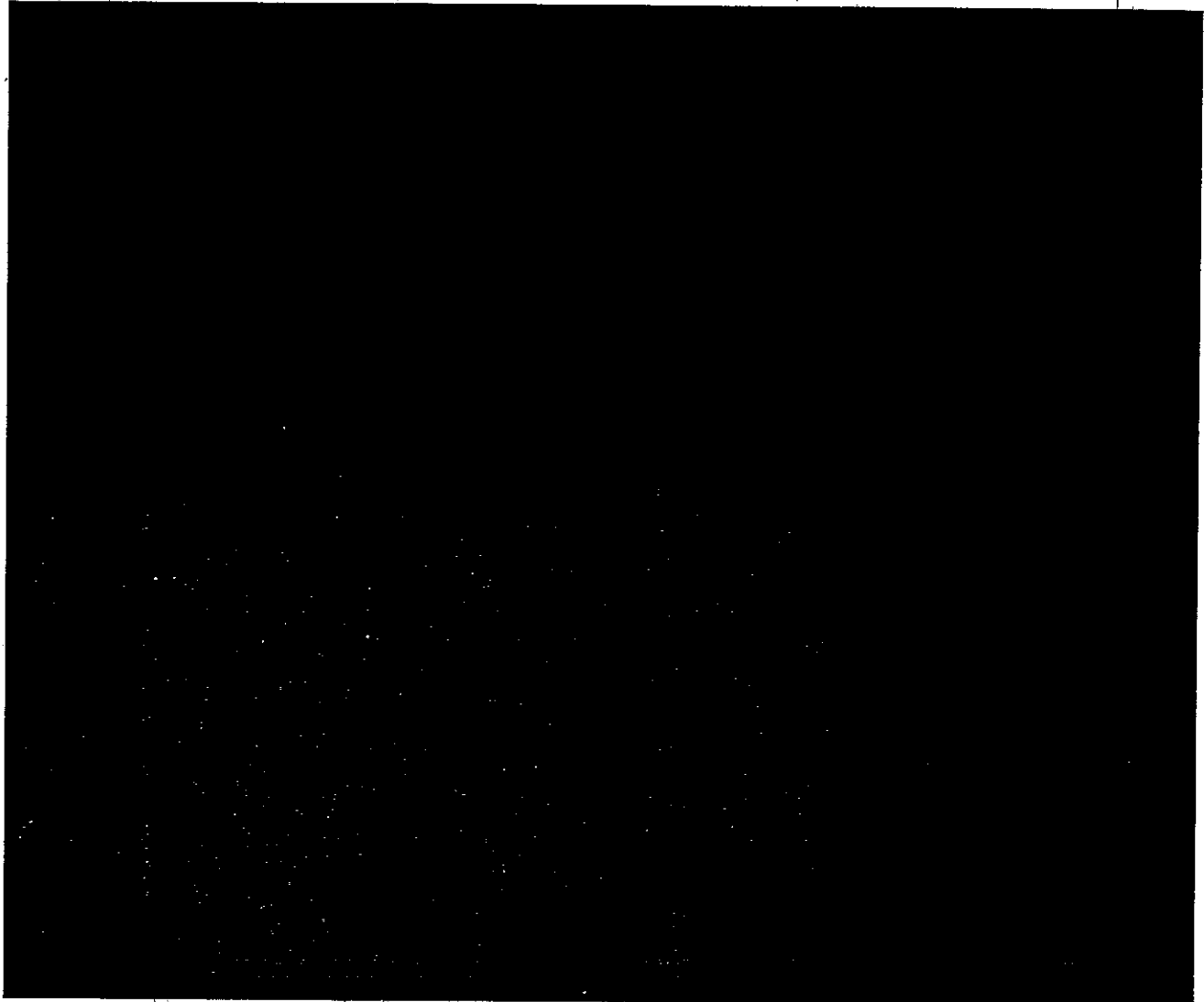
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NUCLEAR ENERGY



South Africans to Fund Preparatory Work for Full Scale Uranium Enrichment Plant: The South African press reported an announcement by Dr. Piet Koornhof, Minister of Mines, that preparatory work will be funded toward building a uranium enrichment plant based on their secret new process to be completed in the early 1980s. The plant will process 12,000 metric tons of uranium per year and will produce 2400 metric tons per year of enriched uranium worth 175 million Rand (\$250 million). The plant will cost R 550 million (\$785 million) compared

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to R 800 million (\$1.1 billion) estimated for a comparable plant based on US technology. The plant will use 2000 megawatts of power. (C)

Comment: While this information does not permit identification of the South African process, it agrees with previous evidence that indicates the use of a physical process such as jet nozzle, mass or thermal diffusion, or some variation of one of these. As derived from the projected production figures, the efficiency (power utilization index - PUI) of the South African plant would be comparable to a US gaseous diffusion plant as currently operated. Therefore, the economic advantage claimed by the South Africans for their process appears to be based on low capital costs, maintenance, and operating costs (cheap power), rather than process efficiency.

Since the South African process has not been fully evaluated in the pilot plant under construction at Valindaba, the production and cost data given by Dr. Koornhof may be optimistic. The figures released indicate a projected plant capacity of about 6.8 million separative work units per year (SWU/yr) with a top product of 2.5 percent U-235, a tails assay of 0.25 percent U-235, and a plant PUI of about 9.0 SWU/MWd.

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